Format: Online live using Zoom

Introduction to GLLVM
- With spatial or temporal dependency -

Provided by: Highland Statistics Ltd

This course offers a journey through classical multivariate analysis techniques, progressing into advanced, recently developed tools for multivariate generalised linear models (GLM) and generalised linear mixed models (GLMM).

We begin with classical multivariate techniques such as principal component analysis (PCA) and redundancy analysis. From there, we transition into generalised linear latent variable models (GLLVM), a powerful approach for analysing multiple response variables simultaneously. GLLVMs account for dependencies among response variables and between observations, providing a flexible framework for complex data.

The course also covers extensions of GLLVMs, including reduced rank regression (constrained latent variables), concurrent ordination and models that incorporate spatial or temporal dependency structures

This is an applied and non-technical course that focuses on the practical implementation in R.

1 hour face-to-face
The course includes a 1-hour face-to-face video chat with the instructors (to be used after the course).

Maximum number of participants: 12. Early bird registration with reduction

Dates:
- 8 - 12 December 2025.
- 08.30 - 16.00 UK time.

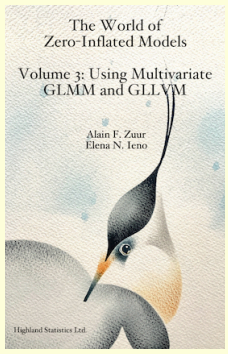
Format: Online live.

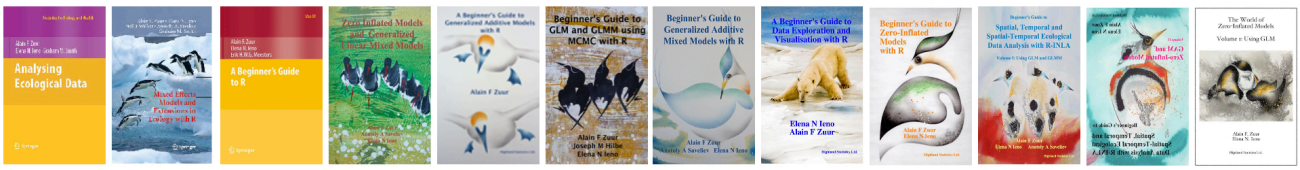
Price:
- Early bird registration (May-July): 450 GBP
- August - December: 500 GBP

Maximum number of participants: 12

Included: 1 hour face-to-face video chat about your data

Instructors: Dr. Alain Zuur and Dr. Elena Ieno.





COURSE CONTENT

Preparation material (with on-demand video):
- Exercise on linear regression.
- Exercise on Poisson / negative binomial GLM.
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- Matrix notation.
- What is a variogram.
- DHARMa for model validation.

Monday:
- General introduction.
- Theory presentation on principal component analysis (PCA) and redundancy analysis (RDA)
- Exercise on PCA and RDA.
- Theory presentation on generalised linear latent variable models (GLLVM).

Tuesday:
- Catching up.
- Two exercises on GLLVM using Poisson and negative binomial models for count data.

Wednesday:
- Theory presentation on constrained GLLVM (reduced rank regression and concurrent ordination).
- Two exercises on constrained GLLVM.

Thursday:
- We will apply exercises using GLLVM with various distributions, including Tweedie, Gamma, Bernoulli, Gaussian, and Beta. While we may not cover all these distributions during the course, solution files will be provided.

Friday:
- Adding spatial and temporal dependency structures to GLLVM.

We reserve the right to change the exercises. Pdf files of all theory material will be provided. All exercises consist of data sets and annotated R scripts. Access to the course website is for 12 months. The material covered from Monday to Friday does not contain on-demand video.

For terms and conditions, see:
https://www.highstat.com/index.php/component/hikashop/checkout/termsandconditions/step-3/pos-6/tmpl-component

A discussion board, accessible for 12 months, facilitates interaction on course content between instructors and participants after the course.

GENERAL INFORMATION